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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/753,276	01/08/2004	David L. Collins	200314702-1	6597

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FORT COLLINS, CO 80527-2400

EXAMINER
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DUDEK JR, EDWARD J

ART UNIT	PAPER NUMBER
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2186

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/753,276

Applicant(s)

COLLINS, DAVID L.

Examiner

Edward J. Dudek

Art Unit

2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12-20 and 23-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14, 16-20, and 23-25 is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-10, 12, 13 and 15 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This Office Action is responsive to the amendment filed in application #10/753276 on 26 March 2007.

Claims 1-10, 12-20, and 23-25 are pending and have been presented for examination.

#### ***Response to Arguments***

Applicant's arguments, see page 11, filed 26 March 2007, with respect to the drawing objections have been fully considered and are persuasive. The objection to the drawings has been withdrawn.

Applicant's arguments, see page 11, filed 26 March 2007, with respect to claims 8-10 have been fully considered and are persuasive. The rejection of claims 8-10 under 35 U.S.C. § 101 has been withdrawn.

Applicant's arguments, see page 11, filed 26 March 2007, with respect to claims 1-7 have been fully considered and are persuasive. The rejection of claims 1-7 under 35 U.S.C. § 112 second paragraph has been withdrawn.

Applicant's arguments, see page 13, filed 26 March 2007, with respect to claim 16 have been fully considered and are persuasive. The rejection of claim 16 under 35 U.S.C. § 102(e) has been withdrawn.

Applicant's arguments with respect to claims 1-4, 8, and 11-13 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments, see page 13, filed 26 March 2007, with respect to claim 16 have been fully considered and are persuasive. The rejection of claim 16 under 35 U.S.C. 102(e) has been withdrawn.

Applicant's arguments, see page 17, filed 26 March 2007, with respect to claim 23 have been fully considered and are persuasive. The rejection of claim 23 has been withdrawn.

Applicant's arguments, see pages 15-16, filed 26 March 2007, with respect to claims 18-19 and 25 have been fully considered and are persuasive. The rejection of claims 18-19 and 25 has been withdrawn.

Applicant's arguments filed 26 March 2007 have been fully considered but they are not persuasive. Applicant submits that Zimmer fails to disclose a memory controller that is initialized to use a first computer memory under control of stack-less instructions and 2) configuration data, assembled under control of stack-based instructions, which enables the memory controller to use both first and second computer memory. The Examiner respectfully disagrees. Zimmer discloses first initializing the cache memory in the processors using firmware that is run out of the system ROM. Then when the cache memories are initialized, a stack is assembled in the cache memory to allow the system to initialize a memory controller for the main system memory and also the main system memory. After the system initialization is complete the processor can then access the cache memory and also main memory by way of the main memory interface.

***Drawings***

The drawings were received on 26 March 2007. These drawings are acceptable.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 15 is rejected under 35 U.S.C. 102(e) as being anticipated by Zimmer et al (U.S. Patent Application Publication #2004/0103272).

Referring to claim 15: Zimmer teaches a computer system, comprising: a memory controller (see figure 2, element 22); first and second computer memory associated with the memory controller (see figure 1, element 14 and figure 2, element 25); stackless instructions (see [0012]); and stack-based instructions (see [0018]); and wherein: under control of the stack-less instructions the computer system initializes the first computer memory for use by the memory controller (see [0012]); and under control of the stack-based instructions the computer system assembles configuration data which enables the memory controller to use the first and second computer memory (see [0021]).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6, 8, and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (U.S. Patent Application Publication #2005/0086464) in view of Bernhard et al (U.S. Patent Application Publication #2003/0233534).

As per claim 1: Lee discloses restarting computer memory initialization (see [0037]); upon restarting computer memory initialization: copying the saved configuration data to initialize the portion of memory (see [0035], lines 8-15); and using the portion of memory to initialize a remainder of memory (see [0035], lines 20-23, *the cache is initialized by code in the flash memory, then code is copied into the cache memory to initialize the remainder of the system memory*). Lee fails to disclose generating configuration data for a portion of memory, and saving the configuration data. Bernhard discloses collecting configuration data for a memory system (see [0028]). This data is stored in a non-volatile memory (see [0027], lines 10-12). During a start up or reset this data is copied from the non-volatile memory to the devices (see [0035]-[0036]). This allows the computer system to rapidly start up, and allow the operating system to be loaded in RAM much earlier (see [0012]). It would have been obvious to a person having ordinary skill in the art to which said subject matter pertains to have modified the system disclosed by Lee to generate and save configuration data for the cache memory

Art Unit: 2186

in the non-volatile memory to allow the system to initialize and load in the operating system much earlier, as disclosed by Bernhard.

As per claim 2: Lee discloses the portion of memory comprises as least one memory module (see [0035], lines 1-7, *the cache memory is initialized first and is used to initialize the remainder of memory*); and the saving further comprises storing the configuration data in a nonvolatile memory device (see [0034]).

As per claim 3: Lee discloses the nonvolatile memory device is associated with the memory module (see [0035], lines 8-15).

As per claim 4: the combination discloses restarting comprises a firmware initiated computer memory initialization (see Lee [0037]); and the method further comprises: determining whether the computer memory initialization is initiated by firmware (see [0037]); upon determining that the computer memory initialization is not initiated by firmware, performing the generating, saving (see Bernhard [0032]-[0033]), and restarting (see Lee [0037]); and upon determining that the computer memory initialization is initiated by firmware, performing the copying and using (see Lee [0035], lines 8-15).

As per claim 6: Lee discloses the portion of memory comprises a first memory controller and first memory associated with the first memory controller (see [0032], *the processor controls the integrated L2 cache memory, and this memory is initialized by the processor executing the code stored in the nonvolatile memory*); the remainder of memory comprises a second memory controller and second memory associated with the second memory controller (see [0027]); and the copying further

comprises copying the configuration data to the first memory controller to enable the first memory controller to use the first memory (see [0035, lines 8-15) to execute instructions to initialize the second memory controller and the second memory (see [0035], lines 20-23).

As per claim 8: Lee discloses resetting a computer system (see [0037]); determining whether the reset is firmware initiated (see [0037]); upon determining that the reset is firmware initiated, copying saved configuration data to initialize a portion of the computer memory (see [0035]), and using the portion of memory to execute instructions to initialize a remainder of the computer memory (see [0035]), and causing a firmware initiated reset of the computer system (see [0037]). Lee fails to disclose generating configuration data for a portion of memory, and saving the configuration data. Bernhard discloses collecting configuration data for a memory system (see [0028]). This data is stored in a non-volatile memory (see [0027], lines 10-12). During a start up or reset this data is copied from the non-volatile memory to the devices (see [0035]-[0036]). This allows the computer system to rapidly start up, and allow the operating system to be loaded in RAM much earlier (see [0012]). It would have been obvious to a person having ordinary skill in the art to which said subject matter pertains to have modified the system disclosed by Lee to generate and save configuration data for the cache memory in the non-volatile memory to allow the system to initialize and load in the operating system much earlier, as disclosed by Bernhard.



As per claim 12: the combination already discloses saving the configuration data in a nonvolatile memory (see Bernhard [0027]).

As per claim 13: the combination already discloses the nonvolatile memory is associated with the portion of the computer memory (see Lee [0034]).

Claims 5 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Lee and Bernard as applied to claims 1-4, 6, 8, and 12-13 above, further in view of Zimmer et al (U.S. Patent Application Publication #2004/0103272).

Referring to claims 5 and 9-10: the combination of Shelling and Bernhard teach all the limitations of claims 1 and 8 as discussed above, however, the combination does not teach using a software stack to initialize the reminder of memory. Shelling does teach that both the relinquished processors and the retained processors share the system memory. Zimmer teaches using the processor as a temporary RAM to utilize high level programming languages that use stacks and heaps for initialization (see [0021]). This allows for more complex algorithms, and to add more features early on in the boot process (see [0021]). It would have been obvious to a person having ordinary skill in the art to which said subject matter pertains to have modified the combination of Shelling and Bernhard, to use the shared memory and run stack based code, as taught by Zimmer, which would provide the ability to write more complex algorithms and provide more functionality early on in the boot process, as taught by Zimmer.

***Allowable Subject Matter***

Claims 14, 16-20, and 23-25 are allowed.

Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward J. Dudek whose telephone number is 571-270-

Art Unit: 2186


1030. The examiner can normally be reached on Mon thru Thur 7:30-5:00pm Sec. Fri 7:30-4 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Kim can be reached on 571-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Edward Dudek  
June 13, 2007



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